

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/487,558

DATE: 11/23/2001

TIME: 14:45:29

Input Set : N:\Crf3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw

KFD
#14
11-26-01

ENTERED

1 <110> APPLICANT: Busby, Robert
 2 Cali, Brian
 3 Hecht, Peter
 4 Holtzman, Doug
 5 Madden, Kevin
 6 Maxon, Mary
 7 Milne, Todd
 8 Norman, Thea
 9 Royer, John
 10 Salama, Sofie
 11 Sherman, Amir
 12 Silva, Jeff
 13 Summers, Eric
 14 <120> TITLE OF INVENTION: Methods for Improving Secondary Metabolite Production
 15 in Fungi
 16 <130> FILE REFERENCE: 109272.147
 17 <140> CURRENT APPLICATION NUMBER: 09/487,558
 18 <141> CURRENT FILING DATE: 2000-01-19
 19 <150> PRIOR APPLICATION NUMBER: US/09/801,368
 20 <151> PRIOR FILING DATE: 2001-03-07
 21 <150> PRIOR APPLICATION NUMBER: US 09/487,558
 22 <151> PRIOR FILING DATE: 2000-01-19
 23 <150> PRIOR APPLICATION NUMBER: US 60/160,587
 24 <151> PRIOR FILING DATE: 1999-10-20
 25 <160> NUMBER OF SEQ ID NOS: 440
 26 <170> SOFTWARE: PatentIn version 3.0
 28 <210> SEQ ID NO: 1
 29 <211> LENGTH: 26
 30 <212> TYPE: DNA
 31 <213> ORGANISM: Aspergillus terreus
 32 <400> SEQUENCE: 1
 33 gaattcatgg aattcgttgc agaaaag 26
 35 <210> SEQ ID NO: 2
 36 <211> LENGTH: 26
 37 <212> TYPE: DNA
 38 <213> ORGANISM: Aspergillus terreus
 39 <400> SEQUENCE: 2
 40 ggatccttag aaatcttgaa agtatt 26
 42 <210> SEQ ID NO: 3
 43 <211> LENGTH: 34
 44 <212> TYPE: DNA
 45 <213> ORGANISM: Aspergillus nidulans
 46 <400> SEQUENCE: 3
 47 gcggccgcgg cgcccggccc atgtcaacaa gaat 34
 49 <210> SEQ ID NO: 4
 50 <211> LENGTH: 25
 51 <212> TYPE: DNA

RAW SEQUENCE LISTING

DATE: 11/23/2001

PATENT APPLICATION: US/09/487,558

TIME: 14:45:29

Input Set : N:\Crf3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw

```

52 <213> ORGANISM: Aspergillus nidulans
53 <400> SEQUENCE: 4
54      ccgcggccga gtggagatgt ggagt                                25
56 <210> SEQ ID NO: 5
57 <211> LENGTH: 30
58 <212> TYPE: DNA
59 <213> ORGANISM: Aspergillus nidulans
60 <400> SEQUENCE: 5
61      catggggccc cgtgatgtct acctgcccac                                30
63 <210> SEQ ID NO: 6
64 <211> LENGTH: 30
65 <212> TYPE: DNA
66 <213> ORGANISM: Aspergillus nidulans
67 <400> SEQUENCE: 6
68      catgatcgat tgtgggtagt taatggtatg                                30
70 <210> SEQ ID NO: 7
71 <211> LENGTH: 40
72 <212> TYPE: DNA
73 <213> ORGANISM: Artificial Sequence
74 <220> FEATURE:
75 <223> OTHER INFORMATION: Oligonucleotide sequence used for PUMP1 PCR.
76 <400> SEQUENCE: 7
77      acaaaaaaagc aggtccaca atgacatccc accacggtga                                40
79 <210> SEQ ID NO: 8
80 <211> LENGTH: 35
81 <212> TYPE: DNA
82 <213> ORGANISM: Artificial Sequence
83 <220> FEATURE:
84 <223> OTHER INFORMATION: Oligonucleotide sequence used for PUMP1 PCR.
85 <400> SEQUENCE: 8
86      acaagaaaagc tgggttcatt cgctccgtcc tttct                                35
88 <210> SEQ ID NO: 9
89 <211> LENGTH: 40
90 <212> TYPE: DNA
91 <213> ORGANISM: Artificial Sequence
92 <220> FEATURE:
93 <223> OTHER INFORMATION: Oligonucleotide sequence used for PUMP2 PCR
94 <400> SEQUENCE: 9
95      acaaaaaaagc aggtccaca atgggcccgcg gtgacactga                                40
97 <210> SEQ ID NO: 10
98 <211> LENGTH: 35
99 <212> TYPE: DNA
100 <213> ORGANISM: Artificial Sequence
101 <220> FEATURE:
102 <223> OTHER INFORMATION: Oligonucleotide sequence for PUMP2 PCR.
103 <400> SEQUENCE: 10
104      acaagaaaagc tgggtctatt gggtaggcag gttga                                35
106 <210> SEQ ID NO: 11
107 <211> LENGTH: 29

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/487,558

DATE: 11/23/2001

TIME: 14:45:29

Input Set : N:\Crf3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw

```

108 <212> TYPE: DNA
109 <213> ORGANISM: Saccharomyces cerevisiae
110 <400> SEQUENCE: 11
111      cgcggtatccc gacatattcg aggttgact                29
113 <210> SEQ ID NO: 12
114 <211> LENGTH: 29
115 <212> TYPE: DNA
116 <213> ORGANISM: Saccharomyces cerevisiae
117 <400> SEQUENCE: 12
118      cccaagcttg ctagaaatat gaaccttcc                29
120 <210> SEQ ID NO: 13
121 <211> LENGTH: 34
122 <212> TYPE: DNA
123 <213> ORGANISM: Aspergillus niger
124 <400> SEQUENCE: 13
125      catggggccc tctctccacc ggcactaaga tagc          34
127 <210> SEQ ID NO: 14
128 <211> LENGTH: 35
129 <212> TYPE: DNA
130 <213> ORGANISM: Aspergillus niger
131 <400> SEQUENCE: 14
132      cgcggtatcca gcattggaaa aggagggggg ggaag          35
134 <210> SEQ ID NO: 15
135 <211> LENGTH: 34
136 <212> TYPE: DNA
137 <213> ORGANISM: Aspergillus nidulans
138 <400> SEQUENCE: 15
139      cgcggtatcca tcacaacaag ttggtaacag tatc          34
141 <210> SEQ ID NO: 16
142 <211> LENGTH: 32
143 <212> TYPE: DNA
144 <213> ORGANISM: Aspergillus nidulans
145 <400> SEQUENCE: 16
146      ggactagtta acaagaçaca cttcttcttc tt            32
148 <210> SEQ ID NO: 17
149 <211> LENGTH: 33
150 <212> TYPE: DNA
151 <213> ORGANISM: Saccharomyces cerevisiae
152 <400> SEQUENCE: 17
153      cgcggtacct atcttcactc aatatacttc cta          33
155 <210> SEQ ID NO: 18
156 <211> LENGTH: 33
157 <212> TYPE: DNA
158 <213> ORGANISM: Saccharomyces cerevisiae
159 <400> SEQUENCE: 18
160      cccaagcttc atcggtgaaa cttgataacg cac            33
162 <210> SEQ ID NO: 19
163 <211> LENGTH: 33
164 <212> TYPE: DNA

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/487,558

DATE: 11/23/2001

TIME: 14:45:29

Input Set : N:\Crif3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw

```

165 <213> ORGANISM: Aspergillus nidulans
166 <400> SEQUENCE: 19
167      cgcggtatccg actaatgaga gactataaat tag                33
169 <210> SEQ ID NO: 20
170 <211> LENGTH: 33
171 <212> TYPE: DNA
172 <213> ORGANISM: Aspergillus nidulans
173 <400> SEQUENCE: 20
174      ccgctcgagc tatagaatag tgcaagtgga agc                33
176 <210> SEQ ID NO: 21
177 <211> LENGTH: 1629
178 <212> TYPE: DNA
179 <213> ORGANISM: Aspergillus terreus
180 <400> SEQUENCE: 21
181      atgacatccc accacggtga aacagagaag ccacagagca acacggctca aatgcagata      60
182      aatcatgtca ctggcctcag gctaggcctg gttgtggttt cagtcactct ggtggcggtt      120
183      ctgatgtctt tggatatgtc catcattgtc acggcgattc ctcacattac cgcccagttt      180
184      cattccctgg gcgatgtcgg atggtacgga agtgcgtatc ttctatcaag ctgtgccctc      240
185      caacccttgg caggcaaaact atacactctg ttgaccctga aatacacctt cctcgctttt      300
186      ctcggttgtt ttgagattgg atcggttctt tgcggcactg ctcgttcgtc aacctatgtt      360
187      attgtagggc gagcagtggc cggaatggga gggtcggggc tcaccaatgg cgcaatcacc      420
188      attctgtcgg cggcagctcc aaagcaacag caaccgctct tgattgggat catgatgggc      480
189      ctaagccaaa tcgccattgt atgtggaccg ttgcttgggg gtgctttcac gcagcacgca      540
190      agttggcggt ggtgttttta catcaacctt cccattgggg cgtttgccac atttctcctt      600
191      ctcgtcatcc agatcccca aagattgcca tccacgtcgg attcaaccac agacggcaca      660
192      aaccccaaga gaagaggggc tcgggacgtc ttgacccaac tggatttcct tggattcgtg      720
193      ctcttcgccc gttttgcgat catgatatct cttgctttgg agtgggggtg gtctgattat      780
194      gcgtggaata gttccgtgat catcggcttg ttctgtgcgg cgggcgtgtc gctgggtcgt      840
195      ttcggatgct gggaaacggc tgtcggcggt gcagtggcca tgattcccat ttccgtggcc      900
196      agtcgtcgcc aagtctggtg ctctctgttc ttctctggct ttttttcggg ggccctaact      960
197      attttctcct actacctgcc tatctacttc caggcggtca agaattgttc tcccaccatg      1020
198      agtggagtgt atatgctgcc gggcattggt ggacagatcg tcatggcgat tgtgacgggt      1080
199      gcaatcatcg gtaaaacagg ctattacgtt ccgtggggcg tcgcaagcgg gatccttgtg      1140
200      tccatatccg ccggactggt atcgaccttc cagccggaaa cctcgattgc agcatgggtc      1200
201      atgtatcagt tcctgggagg cgtggggcga ggatgcggaa tgcaaaccct tgtcgtcgcc      1260
202      attcaaaatg cgctgcctcc acaaacgagc cccatcgcca ttctgctagc catgttcggc      1320
203      cagacattcg gtggctcgct tttctcacc ctgaccgaat tggtttttag caatgggttg      1380
204      gactctggtc tgcgccaata tgcgccaacc ctcaatgcac aggaggtaac agccgcaggg      1440
205      gccaccggtc tccgccaagt ggtccccgct cctctcatct ctcggtcctt cttagcatac      1500
206      agtaaaaggc tggaccatgc attctacgtt gcggtcggtg cgtctggagc taccttcac      1560
207      ttcgcctggg gtatgggccg gcttgccctg agaggctggc ggatgcagga gaaaggacgg      1620
208      agcgaatga
210 <210> SEQ ID NO: 22
211 <211> LENGTH: 542
212 <212> TYPE: PRT
213 <213> ORGANISM: Aspergillus terreus
214 <400> SEQUENCE: 22
215      Met Thr Ser His His Gly Glu Thr Glu Lys Pro Gln Ser Asn Thr Ala
216      1              5              10              15

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/487,558

DATE: 11/23/2001

TIME: 14:45:29

Input Set : N:\Crif3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw

217	Gln	Met	Gln	Ile	Asn	His	Val	Thr	Gly	Leu	Arg	Leu	Gly	Leu	Val	Val
218			20						25					30		
219	Val	Ser	Val	Thr	Leu	Val	Ala	Phe	Leu	Met	Leu	Leu	Asp	Met	Ser	Ile
220			35					40					45			
221	Ile	Val	Thr	Ala	Ile	Pro	His	Ile	Thr	Ala	Gln	Phe	His	Ser	Leu	Gly
222			50				55					60				
223	Asp	Val	Gly	Trp	Tyr	Gly	Ser	Ala	Tyr	Leu	Leu	Ser	Ser	Cys	Ala	Leu
224	65					70					75					80
225	Gln	Pro	Leu	Ala	Gly	Lys	Leu	Tyr	Thr	Leu	Leu	Thr	Leu	Lys	Tyr	Thr
226					85					90					95	
227	Phe	Leu	Ala	Phe	Leu	Gly	Leu	Phe	Glu	Ile	Gly	Ser	Val	Leu	Cys	Gly
228				100					105					110		
229	Thr	Ala	Arg	Ser	Ser	Thr	Met	Leu	Ile	Val	Gly	Arg	Ala	Val	Ala	Gly
230				115					120					125		
231	Met	Gly	Gly	Ser	Gly	Leu	Thr	Asn	Gly	Ala	Ile	Thr	Ile	Leu	Ser	Ala
232			130					135					140			
233	Ala	Ala	Pro	Lys	Gln	Gln	Gln	Pro	Leu	Leu	Ile	Gly	Ile	Met	Met	Gly
234	145					150					155					160
235	Leu	Ser	Gln	Ile	Ala	Ile	Val	Cys	Gly	Pro	Leu	Leu	Gly	Gly	Ala	Phe
236					165					170					175	
237	Thr	Gln	His	Ala	Ser	Trp	Arg	Trp	Cys	Phe	Tyr	Ile	Asn	Leu	Pro	Ile
238				180					185					190		
239	Gly	Ala	Phe	Ala	Thr	Phe	Leu	Leu	Leu	Val	Ile	Gln	Ile	Pro	Asn	Arg
240			195						200					205		
241	Leu	Pro	Ser	Thr	Ser	Asp	Ser	Thr	Thr	Asp	Gly	Thr	Asn	Pro	Lys	Arg
242			210				215					220				
243	Arg	Gly	Ala	Arg	Asp	Val	Leu	Thr	Gln	Leu	Asp	Phe	Leu	Gly	Phe	Val
244	225					230					235					240
245	Leu	Phe	Ala	Gly	Phe	Ala	Ile	Met	Ile	Ser	Leu	Ala	Leu	Glu	Trp	Gly
246					245					250					255	
247	Gly	Ser	Asp	Tyr	Ala	Trp	Asn	Ser	Ser	Val	Ile	Ile	Gly	Leu	Phe	Cys
248				260					265					270		
249	Ala	Ala	Gly	Val	Ser	Leu	Val	Leu	Phe	Gly	Cys	Trp	Glu	Arg	His	Val
250			275						280					285		
251	Gly	Gly	Ala	Val	Ala	Met	Ile	Pro	Ile	Ser	Val	Ala	Ser	Arg	Arg	Gln
252			290				295					300				
253	Val	Trp	Cys	Ser	Cys	Phe	Phe	Leu	Gly	Phe	Phe	Ser	Gly	Ala	Leu	Leu
254	305					310					315					320
255	Ile	Phe	Ser	Tyr	Tyr	Leu	Pro	Ile	Tyr	Phe	Gln	Ala	Val	Lys	Asn	Val
256					325					330					335	
257	Ser	Pro	Thr	Met	Ser	Gly	Val	Tyr	Met	Leu	Pro	Gly	Ile	Gly	Gly	Gln
258				340					345					350		
259	Ile	Val	Met	Ala	Ile	Val	Thr	Gly	Ala	Ile	Ile	Gly	Lys	Thr	Gly	Tyr
260			355						360				365			
261	Tyr	Val	Pro	Trp	Ala	Leu	Ala	Ser	Gly	Ile	Leu	Val	Ser	Ile	Ser	Ala
262			370				375					380				
263	Gly	Leu	Val	Ser	Thr	Phe	Gln	Pro	Glu	Thr	Ser	Ile	Ala	Ala	Trp	Val
264	385					390					395					400
265	Met	Tyr	Gln	Phe	Leu	Gly	Gly	Val	Gly	Arg	Gly	Cys	Gly	Met	Gln	Thr

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/487,558

DATE: 11/23/2001

TIME: 14:45:30

Input Set : N:\Crf3\RULE60\09487558.raw

Output Set: N:\CRF3\11232001\I487558.raw